

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A method for smoothing and polishing a to-be-smoothed surface by ~~treating them the surface with energetic radiation (3), in particular laser radiation, in which~~ comprising:

a first treatment step comprising remelting the to-be-smoothed to-be-smoothed surface (1) is remelted in a first treatment step using ~~said~~ energetic radiation ~~(3) and while~~ employing first treatment parameters at least once down to a first remelting depth ~~(10)~~, which is greater than a structural depth of the to-be-smoothed structures of said to-be-smoothed surface ~~and is $\leq 100 \mu\text{m}$, wherein in said first treatment step,~~ wherein the using of energetic radiation includes using continuous energetic radiation or pulsed energetic radiation, with a pulse duration of $\geq 100 \mu\text{s}$ ~~is employed and such that~~ said surface (1) is remelted down to a first remelting depth ~~(10)~~ of about 5 to 100 μm .

2. (Currently Amended) A method according to claim 1, ~~wherein in~~ further comprising:

a second treatment step comprising leveling micro-roughness remaining on said surface after said first treatment step by remelting the micro-roughness using

said energetic radiation ~~[[3]]~~ and while employing second treatment parameters, ~~micro-roughness remaining on said surface~~ ~~[[1]]~~ ~~after said first treatment step is leveled by remelting down to a second remelting depth~~ ~~[[14]]~~, and by evaporating roughness peaks, ~~which wherein second remelting depth is less than said first remelting depth~~ ~~(10), and by evaporating roughness peaks~~ ~~(15).~~

3. (Previously Presented) A method according to claim 1, ~~wherein~~ including selecting said first treatment parameters ~~are selected in such a manner so~~ that no ablation of material occurs.
4. (Currently Amended) A method according to claim 2, wherein the using step includes using pulsed laser radiation with a pulse duration of $\leq 1 \mu\text{s}$ ~~is employed in said second treatment step.~~
5. (Currently Amended) A method according to claim 1, wherein the remelting step includes remelting said surface ~~(1) is remelted~~ in said first treatment step down to a first remelting depth ~~[[10]]~~ of approximately 10 to 80 μm .
6. (Currently Amended) A method according to claim 2, wherein the remelting of said surface ~~(1) is remelted~~ in said second treatment step includes remelting said surface down to a second remelting depth ~~[[14]]~~ of maximally 5 μm .

7. (Currently Amended) A method according to claim 1, wherein the remelting step includes remelting said surface ~~[(1)] is remelted~~ in said first treatment step multiple times in succession.
8. (Original) A method according to claim 7, wherein with each new remelting step, selecting said first remelting depth ~~is selected~~ less deep than in the previous remelting step.
9. (Currently Amended) A method according to claim 7, wherein the remelting step includes leading said energetic radiation ~~(3) is led~~ in parallel paths ~~[(6)]~~ over said surface ~~[(1)]~~ with successive remelting steps of a section ~~[(4)]~~ of said surface ~~[(1)]~~ being carried out with paths ~~[(6)]~~ turned at an angle.
10. (Currentl y Amended) A method according to claim 1, wherein treatment in said first treatment step occurs successively in a multiplicity of adjacent sections ~~[(4)]~~ of said surface ~~[(1)]~~, with the treatment parameters being changed continuously or in steps towards ~~the~~ a border of said sections ~~[(4)]~~ in such a manner that said first remelting depth ~~[(10)]~~ decreases to said border of said sections ~~[(4)]~~.
11. (Currentl y Amended) A method according to claim 1, wherein in order to retain edges ~~[(13)]~~ on said surface ~~[(1)]~~, said first treatment parameters of said first treatment step are changed continuously or in steps in such a manner that said first remelting depth ~~[(10)]~~ decreases toward said edges ~~[(13)]~~.

12. (Currentl y Amended) A method according to claim 1, wherein the remelting step includes leading said ~~laser~~ energetic radiation (3) ~~is led~~ on one or a multiplicity of meandering paths ~~[(6)]~~ over said surface ~~[(1)]~~.
13. (Currentl y Amended) A method according to claim 2, ~~wherein~~ including impinging said surface (1) ~~is impinged~~ with protective gas during said first and said second treatment steps.
14. (Currentl y Amended) A method according to claim 1, wherein treatment occurs with a beam cross section in form of a line or with a rectangular beam cross section of said energetic radiation ~~[(3)]~~.
15. (Currentl y Amended) A method according to claim 1, further comprising preheating ~~wherein~~ said to-be-smoothed surface ~~[(1)]~~ ~~is preheated~~ before remelting.
16. (Currentl y Amended) A method according to claim 1, ~~wherein~~ including selecting said first treatment parameters ~~are selected in such a manner~~ so that structures of significance of said to-be-smoothed surface ~~[(1)]~~ are retained during remelting.